REMARKS

Claim 79 and 83 have been amended. Claims 87-91 have been added. Claims 85-86 have been canceled. Claims 1-84 and 87-91 are currently examined in this application.

Claims 1-7, 9 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,534,711 to Ovshinsky et al. ("Ovshinsky") in view of U.S. Patent No. 4,818,357 to Case et al. ("Case"). The rejection is respectfully traversed.

All claims of the application relate to forming silver selenide. Ovshinsky, on the other hand, relates to forming a memory material. It is well known by those skilled in the art that silver selenide is a degenerate compound semiconductor material and does not function as a memory material. Thus, Ovshinsky's methods do not related to forming silver selenide.

Claim 1 recites: "maintaining [the] silver selenide target at a temperature of less than about 350° C during [the] sputtering process to form a silver selenide film which comprises both alpha silver selenide and beta silver selenide." As explained in the specification at ¶0048:

> Silver selenide (e.g. Ag_2Se) is well known for its low temperature phase transition point of 406 K (about 130° C.). At temperatures below 406 K, Ag_2Se forms an orthorhombic structure, known as the "beta phase." At temperatures above 406 K (about 133° C.), Ag_2Se undergoes a structural change in which the Se forms a body-centered cubic sublattice, while the Ag undergoes a melting transition. In this so-called "alpha phase" or "superionic phase," the Ag ions exhibit liquid-like diffusion.

Ovshinsky is cited for teaching the formation of a memory device including a memory material, not silver selenide. Ovshinsky notes that the memory material can be sputtered in a process where the substrate is at a temperature ranging from ambient temperature to 300° C. Ovshinsky at Table 2. Ovshinsky does not state a target temperature nor that silver selenide is a suitable memory material, much less that silver selenide is formed in both the alpha and beta phases.

The Office Action relies on Case for teaching a sputtering process that maintains a certain target temperature. Office Action at page 4. Case, however, relates to a method for sputter deposition to form homojunctions, particularly photovoltaically active semiconductor homojunctions. Case at col. 2, lines 52-68. Case is not concerned with forming memory devices as Ovshinsky is and like Ovshinsky is silent about forming silver selenide in both the alpha and beta phases. Thus, even when considered in combination, Ovshinsky and Case fail to teach or suggest the features of any of the present claims.

Moreover, the Office Action has selected a single process parameter from Case's method for combination with Ovshinsky. Specifically, the Office Action cites Case for disclosing "the target [being] kept at 50 degrees Centigrade." The Office Action ignores that Case further discloses heating the "substrate...to 450 degrees Centigrade plus or minus 20 degrees Centigrade ... to provide enough thermal activity to the deposited atoms to ensure proper interatomic bonding." Case at col. 9, lines 38-45. At this temperature it will be impossible for the silver selenide to form in the beta phase – it will instantly transition to the alpha phase upon contact with the substrate, which is heated far above the transition temperature. Thus, Case, taken as a whole, teaches away from the method of claim 1.

The Office Action states that one skilled in the art would be motivated to select the single process parameter of Case (the target being kept at 50 degrees Centigrade) to modify Ovshinsky's process for the purpose of preventing evaporation and sublimation of the non-metallic atoms of the target. Office Action at 11 (citing Case at col. 9, lines 38-41). Neither silver nor selenium are non-metals. Further, evaporation and sublimation are not concerns in the deposition of silver selenide. Therefore, one skilled in the art would not be motivated to modify Ovshinsky based on the teachings of Case.

Furthermore, one skilled in the art would not be motivated to modify Case's sputter process with the substrate temperature parameters set forth in Ovshinsky. Case states that the substrate is kept at 450°C +/- 20 degrees in order "to provide enough thermal activity to the deposited atoms to ensure proper interatomic bonding." Case at col. 9, lines 41-45. Since Case's

process is directed at forming homojunctions, modifying Case as suggested in the Office Action would render Case's process inoperable for its intended purpose. See MPEP § 2143.01(V), (VI) (noting that the proposed modification can not render the prior art unsatisfactory for its intended purpose or change the principle operation of the reference).

The Office Action has used improper hindsight to selectively combine elements of Ovshinsky and Case. "[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). For this additional reason, the Ovshinsky and Case combination does not render obvious claim 1.

Claims 2-7, 9 and 12 depend from claim 1 and are allowable over the combination of Ovshinsky and Case along with claim 1 for at least the reasons provided above as well as on their own merits. Accordingly, Applicants respectfully request the rejection be withdrawn and the claims allowed.

Independent claims 13, 17, 25, 28, 31, 34, 43, 45, 50, 60, 77 and 81 recite similar limitations to the above-described limitation of claim 1. All of these claims stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ovshinsky in view of Case and, in some instances, in further view of various other references. None of the references cure the above identified deficiencies of Ovshinsky and Case. Independent claims 13, 17, 25, 28, 31, 34, 43, 45, 50, 60, 77 and 81, and the claims depending therefrom, are therefore allowable over Ovshinsky and Case, even if combined with the other cited references. Accordingly, Applicants respectfully request the rejection be withdrawn and the claims allowed.

With respect to claims 78, 79, 82 and 83, Applicants note that the Office Action uses Case's teaching of heating the "substrate…to 450 degrees Centigrade plus or minus 20 degrees Centigrade … to provide enough thermal activity to the deposited atoms to ensure proper interatomic bonding." Case at col. 9, lines 38-45; Office Action at 35. As discussed above, at this temperature it will be impossible for the silver selenide to form in the beta phase – it will instantly

transition to the alpha phase upon contact with the substrate, which is heated far above the transition temperature. Each of these claims requires that silver selenide be formed in both the alpha and beta phases. Thus, the Office Action's proposed combination would not result in the method recited by claim 82. For at least this additional reason, Applicants respectfully submit that the rejection of claims 78, 79, 82 and 83 over Ovshinsky and Case should be withdrawn.

Claims 1-84 stand rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-56 of U.S. Patent No. 7,364,644. Since the claims of this application are subject to change, Applicants respectfully request that the double patenting rejection be held in abeyance until the rejections based on the prior art have been overcome.

In view of the above, Applicants believe the pending application is in condition for allowance.

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Respectfully submitted,

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